

CATARACT FALLS BRIDGE

Spanning Mill Creek, bypassed section of CR 279 (Cataract Falls  
Unit of Leiber State Recreation Area)

Cataract

Owen County

Indiana

HAER IN-104

*IN-104*

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, DC 20240-0001

# HISTORIC AMERICAN ENGINEERING RECORD

## CATARACT FALLS BRIDGE

HAER No. IN-104

LOCATION: Spanning Mill Creek, bypassed section of CR 279 (Cataract Falls Unit of Leiber State Recreation Area), Cataract, Owen County  
UTM: 16.516057.4364900

STRUCTURAL TYPE: Wooden covered bridge, Smith truss

DATE OF CONSTRUCTION: 1876

BUILDER: Smith Bridge Company, Toledo, Ohio

SIGNIFICANCE: Cataract Falls Bridge is the only surviving covered bridge in Owen County, Indiana. It is also one of only six Smith trusses in Indiana. This popular late nineteenth century bridge was patented by Robert W. Smith and built by his company or under license to him. Smith's innovations, represented by the Cataract Falls Bridge, were among the last in wooden bridge design even as the country was making the shift to all-metal bridges.

HISTORIAN: Mark M. Brown, 2001; revised by Matt Reckard of J.A. Barker Engineering, Inc., 2002

PROJECT INFORMATION: This report was originally prepared by Mark Brown and Matt Reckard of J.A. Barker Engineering, Inc. for the Indiana Department of Natural Resources. Its purpose was to provide historical background about the bridge that will assist in the bridge's rehabilitation and help park personnel interpret the bridge to the public.

The National Covered Bridges Recording Project is part of the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering and industrial works in the United States. HAER is part of the Historic American Buildings Survey/Historic American Engineering Record, a division of the National Park Service, U.S. Department of the Interior. The Federal Highway Administration funded the project.

## INTRODUCTION

The Cataract Falls Bridge crosses Mill Creek in the Cataract Falls Unit of Lieber State Recreation Area. It was built in 1876 and is the only surviving covered bridge in Owen County, Indiana. It is also one of only six Smith trusses in Indiana.<sup>1</sup> This popular late nineteenth century bridge type was patented by Robert W. Smith and built by his company or under license to him. Smith's innovations, represented by the Cataract Falls Bridge, were among the last in wooden bridge design even as the country was making the shift to all-metal bridges.

## HISTORY

As its name suggests, the community at Cataract, Indiana, has been intimately linked to the falls in Mills Creek, originally known as Eel River. Early settler Isaac Teal built a mill in about 1820 near the lower falls. Theodore Jennings, for whom Jennings Township would be named, was apparently attracted to the beauty of the falls and their economic potential. In 1841, he purchased the ruins of Teal's mill, both falls and surrounding land totaling 1,000 acres. Before long, Jennings had constructed mills for flour, wool, barrels, and eventually lumber. In 1876, the same year the current bridge was built, the community that grew around these workshops reached a population of about 100 and was the principal settlement of Jennings Township.<sup>2</sup>

In 1876, a network of roads connected Cataract with neighboring communities and the outside world. While the little village was not located on the direct route between Spencer and Greencastle, merchants and others could have made the trip between the Owen and Putnam county seats by way of Santa Fe (now Cuba) to the south and either Cloverdale or Needmore (now Cunot) and Putnamville to the north. Roads also connected Cataract to Bowling Green to the west (in Clay County) and, perhaps most importantly, to the Louisville and New Albany Railroad to the east at Quincy.<sup>3</sup>

A bridge was built just below the Upper Falls before 1875. This bridge would have provided a critical link between the mills and shops at Cataract and the residents across the river in the northern and eastern sections of Jennings Township. Its location is clearly marked by the ruins of the heavy stone abutments, but little more is known about this bridge. It seems likely

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<sup>1</sup> The others are the 1872 150' North Manchester Bridge across the Eel River in North Manchester, Wabash County; the 1875 170' Old Red Bridge across Big Bayou Creek near Jintown, Gibson County; the 1877 164' Wheeling Bridge across the Patoka River near Oatsville, Gibson County; the 1873 186' Coburn Bridge across the St. Joseph River in Spencerville, Dekalb County; and the 1875 102' Vermont Bridge, moved to Highland Park in Kokomo, Howard County.

<sup>2</sup> Owen County Historical and Genealogical Society, *A History* (Spencer, IN: Owen County Historical and Genealogical Society, 1994), 58-59.

<sup>3</sup> [Alfred T. Andreas], *Maps of Indiana Counties in 1876, Together with the Plat of Indianapolis and a Sampling of Illustrations* (Indianapolis: Indiana Historical Society, 1968).

that it was a covered bridge and, given its size, that only the county would have had the resources to build it.

The early Cataract Bridge was swept away, along with more than a dozen other bridges in Owen County, by a flood that crested on August 2, 1875. Widespread damage across the county included the loss of much topsoil, most of the corn and wheat crops, and severed telegraph and railroad connections. While there was very little loss of life and only one reported incident of looting, the *Owen County Journal* estimated damages at a half-million dollars.<sup>4</sup>

The county commissioners began discussing replacing the lost bridges almost immediately. On August 19, they issued an order advertising for bids to repair nine bridges, including “one across Eel River, known as the Cataract bridge, in Jennings Township.” For reasons that are not clear, the commissioners did not keep to their advertised intent to accept bids for the Cataract Falls Bridge on August 31, 1875. Instead, on September 9, they decided to seek bids for a new wooden bridge and specified that “the style, plan and finish, are to be in all respects like the covered spans of the bridge over White River, at Gosport, and known as the ‘Smith Wooden Truss’.”<sup>5</sup> Perhaps the commissioners had initially hoped to repair any remaining fabric of the Cataract Falls Bridge or to reuse the existing abutments. Surely they were impressed that the Gosport bridge survived the flood. Whatever the case, in specifying the “Smith Wood Truss,” the commissioners were in some respects going through the motions of competitive bidding as Smith trusses were typically prefabricated by the Smith Bridge Company in Toledo, Ohio. Under these circumstances, then, it is not surprising that on October 22, the commissioners awarded the contract “to furnish all material, build and complete the superstructure of a ‘Smith’s High Double Wood Truss’ Bridge across the Eel River in Jennings Township” to the Smith Bridge Company of Toledo, Ohio, at the cost of \$14.35 per linear foot of bottom chord.<sup>6</sup> A separate contract for the abutments was awarded to William Baragan. There seems to be no further record of the matter in the *Commissioners’ Record* until payment for the abutments (\$1678.84) and the bridge on (\$2009.00) on December 5 and 6, 1876. William H. Troth, who had been Owen County Auditor in 1875, received \$30.00 to cover unspecified “services rendered in the construction of Cataract Bridge.”<sup>7</sup>

## DESCRIPTION

The new bridge at Cataract was constructed just above the upper falls near the water-powered mill complex established by Jennings. The cut stone abutments are about 23' wide and 6' thick. Wingwalls are built perpendicular to them out of dry-laid rubble. There are 129' between abutments, and the single lane bridge has about 10' of clearance over normal creek

<sup>4</sup> *Owen County Journal* [Spencer, Indiana], August 5 & 12, 1875.

<sup>5</sup> *Owen County Journal*, August 21, 1875. A picture of the Gosport Bridge is on page 38 of George E. Gould, *Indiana Covered Bridges thru the Years* (Indianapolis: Indiana Covered Bridge Society, 1977).

<sup>6</sup> Owen County, *Commissioners’ Record*, 10 (October 22, 1875), 141, located in Owen County Archives in Spencer Indiana, hereinafter cited as *Record*.

<sup>7</sup> Owen County, *Record* 10 (December 5, 1876), 276; (December 6, 1876), 285, 287.

levels. Truss lower chords are 140' long; including roof extensions the entire structure is 150' long. The two trusses are 16'-6" tall overall; the entire structure to the peak of the roof is about 21' tall. There are 13'-8" clear between the inner faces of the two trusses' chords; total structure width between roof eaves is just under 20'.

Little is known about the post-construction history of the bridge. The present board siding, roof shingles, and the top layer of board decking were installed in 1995. Each may have been replaced several times in the bridge's 125-year history. Early photographs show that the bridge originally had no windows. Vandals cut the first window in the north wall in 1980 to remove artwork painted on it in 1977. The present windows are the result of the 1995 repairs. A new concrete bridge was built in 1988, and the covered bridge no longer carries vehicular traffic.<sup>8</sup>

Close inspection of the structure indicates few alterations to the original structure. One compression diagonal in the upstream truss has been replaced with a timber of different dimensions and species. A pair of vertical steel rods has been added to the downstream truss where a tension diagonal's lower end has broken off. The concrete mudwalls atop the back sides of the abutments presumably replaced stone originals. The bridge probably originally had plank rails along the inside of the trusses, but there are none now. Dates for these alterations are not known.

## ROBERT W. SMITH AND THE SMITH BRIDGE COMPANY

Robert W. Smith (1834-1898) was the son of an Ohio cabinet maker. He had little formal education and by his midteens he was a builder's carpenter. Apparently some of his early independent work included barns with self-supporting roofs. In his late twenties, Smith ran a woodworking machine shop and lumberyard in Tippecanoe City, Ohio, with his brother. At some point, Smith turned his attention to wooden bridges and received a patent for his version of a double-intersection Warren truss in 1867.<sup>9</sup> Also in 1867, Smith moved to Toledo, Ohio, to take advantage of better transportation facilities and organized the R.W. Smith & Company partnership. That year the company built five bridges, and two years later it completed seventy-five. Smith received a second bridge patent in 1869 for roofing and lateral-bracing systems. The Cataract Falls Bridge makes it clear that while Smith continued to modify its designs, he did

<sup>8</sup> Cataract photo file; "Vandals Remove Art Work...And Wall...From Cataract Covered Bridge," unattributed newspaper clipping, March 30-31, 1980, Covered Bridge Folder; "Cataract Covered Bridge to be Dedicated Saturday, Oct. 7," *Evening World* [Spencer, Indiana], September 29, 1995, Covered Bridge Folder; all in Owen County Information Cabinet, Genealogical Collection, Owen County Public Library.

<sup>9</sup> The term "double intersection Warren" is based on Allen T. Comp and Donald Jackson, "Bridge Truss Types: A Guide to Dating and Identifying," *History News* 32, no. 5 (May 1977; republished as Technical Leaflet 95 by the American Association for State and Local History): 8 (of republished version). The bridge literature uses many terms to describe Smith's trusses such as those at Cataract including: "Type 3" (Gould, 8), "Type 4" (Raymond E. Wilson, "The Story of the Smith Truss," *Covered Bridge Topics* XXV, no. 1 (April 1967): 5), "half lattice," and "Warren Quadrangle Truss" (Tim Douglas, "Restoration Work Begins on Covered Bridge at Cataract," *Owen County Leader* [Spencer, Indiana], (January 12, 1995), 82).

not bother to apply for additional patents. In 1870, the company's name was changed to Smith Bridge Company and reorganized as a joint stock company. Over a period of time the Smith Bridge Company made the transition to the exclusive fabrication of metal bridges.<sup>10</sup> Apparently, metal-swing bridges were a speciality. Smith sold the business in 1890 and turned his attention to real estate. The company, renamed Toledo Bridge, was acquired as part of a nation-wide consolidation of the bridge-fabrication industry by American Bridge Company, a division of United States Steel, in 1901.<sup>11</sup>

## NATIONAL CONTEXT OF THE CATARACT BRIDGE<sup>12</sup>

The Smith truss, used on the Cataract Falls Bridge, was one of the last of a long tradition of innovative wooden trusses. With roots in the work of Italian Renaissance architect Andrea Palladio and his predecessors, the wooden truss was by no means an American invention. Wooden covered bridges were built on an unparalleled scale in the United States with its vast expanse of land and plentiful supplies of timber. Nearly 1,500 may have been built in Pennsylvania alone although only 217 of them survived by the early 1990s. Parke County, northwest of the Cataract Falls Bridge, which has thirty-one of the eighty-seven covered bridges surviving in Indiana, provides a glimpse of the original density of covered bridges in the United States.

The challenges and opportunities presented by American rivers certainly contributed to the development of wooden truss technology. Timothy Palmer constructed a three-span structure for the 495' timber bridge over the Schuylkill River at Philadelphia in 1806. Named the "Permanent Bridge," it may well have been the first use of roof and siding to protect the trusses from rot-causing moisture. Six years later Lewis Wernwag built a single-span 340' covered bridge a short distance upstream from Palmer's Permanent Bridge.<sup>13</sup> Multi-span bridges could also be impressive. Theodore Burr built a twelve-span, 2,520' bridge at Harrisburg, Pennsylvania, in 1817.

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<sup>10</sup> David A. Simmons, "Neighboring Wood and Iron Bridges to Share Heritage," *Ohio County Engineering News* (February 1988): 20. For information on the metal bridges constructed by the Smith Bridge and Toledo Bridge Companies in Indiana, see James L. Cooper, *Iron Monuments to Distant Posterity: Indiana's Metal Bridges 1870-1930* (N.P.: Privately printed, 1987).

<sup>11</sup> Clark Waggoner, ed., "The Smith Bridge Company," *History of Toledo and Lucas County* (New York: Munsell & Co., 1888), 786-787; Eldon M. Neff, "Highlights in the Life of Robert W. Smith," *Connecticut River Valley Covered Bridge Society* XI, no. 4 (Spring 1963); for photographs of Smith and his bridge works see John Diehl, "Bridges to the Past," *Timeline* 15, no. 3 (May-June 1998): 38; Robert W. Smith "Improvement in Bridges" and "Improved Bridge." All courtesy of David Simmons, Ohio Historical Society; Victor C. Darnell, *A Directory of American Bridge-Building Companies: 1840-1900* (Washington, DC: Society for Industrial Archaeology, 1984), 55-56, 85-86.

<sup>12</sup> This section generally follows: Historic American Engineering Record, National Park Service, U.S. Department of the Interior, "McConnell's Mill Bridge," HAER No. PA-458, Prints and Photographs Division, Library of Congress; and Wayne M. Weber, *Covered Bridges in Indiana* (Midland, MI: Northwood Institute, 1977), 15-23. Weber provides a very good introduction to the basics of truss terminology and design principles.

<sup>13</sup> On Wernwag's bridge, see Lee H. Nelson, *The Colossus of 1812: An American Engineering Superlative* (New York: American Society of Civil Engineers, 1994).

Burr was one of the first American builders to receive a patent for a covered bridge. Awarded in 1804, the Burr arch truss proved a very durable technology--Hoosiers continued to build Burr arches into the 1920s.<sup>14</sup> Burr's patent used arches to reinforce a king-post truss. The king post is a structural system dating back to at least the Middle Ages in which a vertical tension member, either wood or metal, is used to hang the deck or roadbed from heavier members arranged like a triangular roof gable. These heavy sloping timbers are always under compression.<sup>15</sup> Both Indiana's oldest and longest covered bridges, the 1838 Ramp Creek Bridge of Putnam County (subsequently re-erected across Salt Creek, Brown County) and the 434' Medora Bridge, respectively, are Burr arch trusses.

In 1820, Ithiel Town patented his lattice truss. Town's lattice consisted solely of a network of diagonals and no vertical members--not unlike certain types of pie crusts. It was very popular with carpenters because it used large numbers of identical light wooden planks. It also had the advantage of being structurally redundant. As a result, the bridge would stand even if one or two timbers failed. None of the four or five Town trusses built in Indiana survive.<sup>16</sup>

Indiana is quite fortunate to have an example, now in Mill Race Park, Columbus, of the next important innovation, the Long truss.<sup>17</sup> Col. Stephen Long was the first to apply French mechanical theory--at that time the most advanced in the world--to timber bridge design in the United States. Long based his truss on modules, or panels, with diagonal timber in compression and vertical timbers in tension. The brilliance of Long's design was in the use of wedges that insured compression of the diagonals and that could easily compensate for shrinkage. He received the first of several patents in 1830.<sup>18</sup>

In 1840, however, William Howe, probably with assistance from his brother-in-law Amasa Stone, rendered the Long truss obsolete. Generally known as the Howe truss, the system of Howe and Stone replaced the wooden vertical members and the wedges of the Long truss with threaded metal rods. The diagonal timbers and the vertical rods were connected in such a way that tightening nuts on the vertical rods set the diagonals in compression. Not only did this simplify construction without changing the behavior of Long's design, but also it marked the

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<sup>14</sup> These include the 155' Nevins Bridge across the Little Raccoon Creek near/at Minshall of 1920 and the 80' Edna Collins Bridge across Little Walnut Creek near/at Clinton Falls of 1922. See *Indiana Atlas & Gazetteer: GPS Grids, Topo Maps of the Entire State, Back Roads, Outdoor Recreation* (Yarmouth, ME: DeLorme Publishing Company, 1998), 9.

<sup>15</sup> The Philips Bridge, Arabia, Indiana, across Big Pond Creek is a 43' king-post truss. See *Indiana Atlas & Gazetteer*, 9. For an illustration of a simple king post, see John Diehl, "Bridges to the Past," *Timeline* 15, no. 3 (May-June 1998): 33.

<sup>16</sup> Gould, 7.

<sup>17</sup> The bridge was built in 1840 to carry Main Street over the Whitewater River at Brownsville, Indiana. It was documented, disassembled, and re-erected in a highly modified form at its current location in Columbus, Indiana.

<sup>18</sup> Dario Gasparini and Caterina Provost, "Early 19th Century Developments and Truss Design in Britain, France and the United States," *Construction History* 5, 28-30; Dario Gasparini and David Simmons, "American Truss Bridge Connections in the 19th Century. I: 1829-1850," *Journal of Performance of Constructed Facilities* 11, no. 3 (August 1997): 119-122.

beginning of the transition from wood to all metal trusses. Indeed, railroads began using all-metal Howe trusses in the mid-1840s.<sup>19</sup> About twenty Howe trusses survive in Indiana, including the 150' Cades Mill Bridge, built in 1854 across Coal Creek near Veedersburg, and the 376' Williams Bridge across the East Fork of the White River in Lawrence County.<sup>20</sup>

When Smith received his first patent in 1867, he was competing against established and highly reputable Burr arch and Howe trusses. Indeed, Smith often constructed Howe trusses if they were preferred by his clients. One of Smith's competitive advantages came from his move to Toledo and the shipping capacity of its railroads. Eldon M. Neff has noted that Smith

framed the bridges at Toledo, disassembled and shipped them to the bridge site, where they were erected either by his men, or another bridge builder. If the cost of the shipping materials were too great, he designed the bridge at Toledo, and arranged to obtain the materials near the bridge site, if his men were to erect the bridge. In some cases, other builders using his bridge design, secured their own materials, and paid a royalty to the Smith Bridge Company.<sup>21</sup>

By this system, Smith trusses were built in Ohio, Indiana, Pennsylvania and Oregon.<sup>22</sup> It is not entirely clear how many other wooden bridge builders were doing this in the 1870s, but the procedure became standard for metal bridge builders. It is ironic that Smith developed a covered bridge system only to use a production method generally associated with the metal bridges that superseded his invention. The use of this mass-production approach to wooden truss fabrication challenges the general conception of covered bridges as the work of artisans of a pre-industrial era.

The 1870s saw strong growth of the metal truss, and by the 1880s, it had become the dominant bridge type. Local preference and special circumstances often could disrupt this national pattern, however. Such would seem to be the case in Indiana. Indiana covered bridge construction was at its peak in the 1880s. A little more than 25 percent of the covered bridges extant in 1998 were built between 1900 and 1922. The persistence of wood construction can be attributed in part to the steel shortages of World War I, but most of these bridges were built because county commissioners preferred covered bridges. These were exceptions, however, that eventually yielded to the rise of state highway departments and their well-funded preference for standard designs.<sup>23</sup>

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<sup>19</sup> Gasparini and Simmons, 122-125.

<sup>20</sup> *Indiana Atlas & Gazetteer*, 9.

<sup>21</sup> Neff, 4.

<sup>22</sup> Gould, 17. Apparently, while none survive, Smith trusses were the most popular truss type in Oregon for a period. See Nick and Bill Cockrell, *Roofs Over Rivers: A Guide to Oregon's Covered Bridges* (Beaverton, OR: Touchstone Press, 1978), 84.

<sup>23</sup> Richard Sanders Allen, *Covered Bridges of the Middle West* (Brattleboro, VT: The Stephen Greene Press, 1970), 58-69. On the rise of the Indiana State Highway Commission and its development of standard designs, which was fairly representative of national patterns, see James L. Cooper, *Artistry and Ingenuity in Artificial Stone: Indiana's Concrete Bridges, 1900-1942* (N.P.: Privately printed, 1997), 108-159.



## **CONSTRUCTION FEATURES OF THE CATARACT FALLS BRIDGE**

The Cataract Falls Bridge shows evidence of its manufacturing process, which was advanced for a covered bridge. Many covered bridges have hewn timbers of irregular size, finish and even wood species. The Cataract Falls Bridge timbers have smooth, planed surfaces and uniform dimensions. Furthermore, at every joint between the dozens of timbers and spacer blocks that make up the chords both pieces of wood are match-marked with numbers painted in red. This would have been done at the factory in Toledo to ensure proper reassembly once the bridge reached Cataract.

The arrangement of the diagonal members of Smith trusses like the one at Cataract is distinctive. A truss in which the diagonals form a repeating “W” or zigzag pattern is known as a Warren truss. At Cataract there are two such patterns next to each other. Where one set of diagonals “zigs” the other “zags” to create a type of lattice pattern some have called a “Double Intersection Warren” truss. Bolts connect the diagonals in the two planes where they cross. Another distinctive feature of Smith trusses is the inclined timber brace between the base of the end post and a point near the top of the outermost tension diagonal.

All of the main structural elements in Smith trusses are wood (metal is limited to fasteners and relatively small castings). Construction of effective tension joints has historically been problematic in wood structures, and Cataract Falls Bridge is not an exception. Tension members in Smith trusses include the lower chords and some of the diagonals.

At Cataract, as in many covered bridges, the lower chord’s timbers are spliced together with wooden “fish plates”. The fish plates are shaped like elongated Cs whose ends fit into notches cut in the timbers they connect. At Cataract many of these joints are broken; either one end of the C or wood on the end of a timber has sheared off. The top chord, a compression member, uses simple butt joints.

Tension diagonals in Smith trusses also use notches. The ends of the diagonals are sandwiched between chord timbers, and both diagonals and chord timbers are notched. The diagonals must extend beyond the chord they are joined to for the tension joint to work (just as notched logs in a cabin extend beyond the building’s corners). On Smith trusses all of the diagonals that point outwards as they go upwards are built like this. Some of these tension joints show signs of structural distress, although fewer than lower chord joints.

Diagonals that point inwards as they go upwards are always in compression near the ends of the truss and so can be built differently. The ends of these diagonals are simply butted up against tension diagonals where they meet the chord. The chord and the two diagonals thus all meet at about the same point.

Near the center of the trusses, however, diagonals in both directions may be in tension, depending on load conditions. Tension diagonals from different directions cannot meet at a single point because of their “tails” extending beyond the chord. Instead, the joints are about 2’

apart (the tips of the “tails” are just inches apart). This is the reason for the changed geometry near the center of the Smith trusses that has mystified some observers.

Loads on the diagonals of the Cataract Falls Bridge trusses get progressively smaller moving from the ends to the center of the bridge. The size of the diagonal timbers do also. All are about 7" thick, but their width varies. The biggest, the outermost tension diagonals, are about 12" wide. The width is reduced in 1" increments until the smallest, at the bridge's center, are only about 6" wide. This accurate sizing of members to loads reflects the knowledge of structural mechanics that had been gained since the first covered bridges were built.

The Cataract Falls Bridge has cast iron fittings in two shapes. One, found next to the base of the endposts, provides a solid seat for the intermediate length brace. The other is found in the upper and lower lateral bracing, which helps maintain the vertical alignment of the trusses and resists wind loads. The Smith Bridge Company used a patented casting to firmly bolt the lateral bracing to the chords.<sup>24</sup> This special casting also has flanges that keep the lateral bracing diagonals firmly notched together.

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<sup>24</sup> Robert W. Smith, “Improved Bridge,” U.S. Patent No. 97,714 (December 7, 1869), figures 6-8. Smith's first patent was “Improvement in Bridges,” U.S. Patent No. 66,900 (July 16, 1867).

**APPENDIX A:** Additional Material noted after February 2002

The mudwalls appear to have stone underneath the concrete. Difficult to see because they are mostly buried, but Matt Reckard's guess is that they are original dry-laid stone mudwalls with retrofit concrete caps.

Mortar samples gathered from the abutments 6 April 2002 showed at least two types. Two samples were tan and softer--presumably old lime mortar material. They varied a bit in color, hardness and weathering but both could easily be original material. One sample was a gray, hard material--portland cement mortar, showing that at least limited repointing was done sometime.

The old photos found of the bridge (back to 1939) show a metal roof. It appears the roof was old in 1939.

4/15/02: Per Owen County Library, they have an 8x10 clear photo of the bridge from 1939. Also Tom Douglas of *Spencer Evening World* says their morgue has some photos, but none as old as 1939.

4/19/02: Reviewed the library's and *Evening World*'s photos. This revealed details of the portal treatment, presence of wood post-and-plank off-bridge fences, presence of wheelguard but no rails on the bridge and presence of signs over both portals. The sign over the west portal in 1939 was not there later, but it or a similar sign reappeared later, which read "\$1 FINE FOR RIDING OVER (illegible) THAN A WALK". Based on early signs on other covered bridges, the size of the lettering, and size of the illegible gap, the complete sign probably read "\$1 FINE FOR RIDING OVER BRIDGE ANY FASTER THAN A WALK".<sup>25</sup>

Matt Reckard has seen painted match-marking of joints essentially identical to that at Cataract on several Smith trusses in Greene and Brown counties, Ohio.

The truss members appear to have been whitewashed at some time. The whitewash has bled off completely near the portals where exposed to weather the most, but it is quite apparent in more protected areas. None on the chords.

Bolt holes in floor beams and occasional remaining bolts indicate that there was once a wooden curb or "wheelguard" along both sides of the deck. There are no nail or bolt hole patterns or discolored "ghosts" on timbers indicating there were ever any rails on the bridge.

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<sup>25</sup> See Allen, 95.

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ADDENDUM TO:  
CATARACT FALLS BRIDGE  
Spanning Mill Creek, bypassed section of CR 279 (Cataract Falls  
Unit of Leiber State Recreation Area)  
Cataract  
Owen County  
Indiana

HAER IN-104  
*IN-104*

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, DC 20240-0001

HISTORIC AMERICAN ENGINEERING RECORD

ADDENDUM TO  
CATARACT FALLS BRIDGE

(HAER No. IN-104)

This is an addendum to a 12-page report written in 2001-2002 and transmitted to the Library of Congress in 2006.

In October 2004, necessary repairs had been completed on the Cataract Falls Bridge. Federal funding obtained by the State of Indiana's Department of Natural Resources, Division of Engineering financed the project. Matthew Reckard of J.A. Barker Engineering, Inc. led the rehabilitation, with work contracted to Intech Contracting, LLC. Necessary repairs included alleviating the sagging at mid-span; rebuilding the floor and wing walls; repairing truss diagonals and abutments; and laying riprap. McAlister Stone Company built the masonry wing walls using dry-laid stone masonry.

After the repairs had been completed, the bridge was moved back to its position spanning Mill Creek. An article in the September/October 2005 edition of *Outdoor Indiana* provides a description of how the bridge was moved.

Small rollers had been positioned underneath the covered bridge, which was mounted atop 27-foot steel I-beams. A couple of "spotters" walked the narrow beams on the east end of the bridge, checking as the move got underway....Before the move, special cribbing supports had been built underneath the steel I-beam rails....By 6 p.m. all crews breathed a sigh of relief. The bridge was finally back over the creek. The next day, crews returned to tear down the cribbing supports beneath the steel I-beams. (Railroad tie-sized stacked timbers constituted the cribbing. They were connected by vertical two-by-four planks.) The 10,000-pound capacity Caterpillar lifted each cribbing support and then moved it to a different site on the bank.<sup>1</sup>

In spring 2005, the restored bridge was listed on the National Register of Historic Places.

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<sup>1</sup> Cindy Gamble, "Cataract Covered Bridge: On the Move," *Outdoor Indiana* (September/October 2005), available online at <http://www.in.gov/dnr/public/septoct05/story1.html>, accessed December 2006.